Claims

[c1]   1. A position detecting circuit for a touch pad, said touch
pad including a sensing pad and a sensing pen, the po-
sition detecting circuit comprising:

a waveform generator, for generating an input signal,
wherein said input signal is capable of gradually moving
a position of a zero voltageon said sensing pad in a pre-
determined direction;

a filter, for receiving a sensing signal sensed by said
sensing pen, and filtering and outputting said sensing
signal;

an amplifier, coupled to said filter, for receiving and am-
plifying said filtered sensing signal;

an envelope detector, coupled to said amplifier, for de-
tecting said filtered-amplified sensing signal and gener-
ating an envelope signal;

a zero voltage detector, coupled to said envelope detec-
tor, for receiving said envelope signal and generating an
output signal, wherein said output signalis capable of
determining as to when a zero voltage occurs; and

a controller, coupled to said waveform generator and
said zero voltage detector, for controlling said waveform
generator to generate said input signal and determining

a position ofsaid sensing pen on said sensing pad responsive to said output signal from said zero voltage detector.

[c2]   2.The circuit of claim 1, further comprising a multiplexer for switch-inputting said input signal between a horizontal direction and a vertical direction of said sensing pad.

[c3]   3.The circuit of claim 1, wherein said waveform generator includes two digital-to-analog converters.

[c4]   4. The circuit of claim 1, wherein said position of said zero voltage moves back and forth in said predetermined direction.

[c5]   5. The circuit of claim 1, wherein said zero voltage detector is a comparator.

[c6]   6.A position detecting methodfor a touch pad, said touch pad including a sensing pad and a sensing pen, the method comprising:
inputting an input signal, wherein said input signal is capable of gradually moving a position of a zero voltageon said sensing pad in a predetermined direction; and determining a position of said sensing pen on said sensing pad based on a timing when a zero voltage of a sensing signal of said sensing pen occurs.

[c7]   7. The method of claim 6, further comprising switch-inputting said input signal between a horizontal direction and a vertical direction of said sensing pad.

[c8]   8.The method of claim 6, wherein said position of said zero voltage moves back and forth in said predetermined direction.

[c9]   9.A touch pad, comprising:

a sensing pad;

a sensing pen;

a waveform generator, for generating an input signal, wherein said input signal is capable of moving a position of a zero voltageon said sensing pad in a predetermined direction gradually;

a filter, for receiving a sensing signal sensed by said sensing pen, filtering and outputting said sensing signal;

an amplifier, coupled to said filter, for receiving and amplifying said filtered sensing signal;

an envelope detector, coupled to said amplifier, for detecting said filtered-amplified sensing signal and generating an envelope signal;

a zero voltage detector, coupled to said envelope detector, for receiving said envelope signal and generating an output signal, wherein said output signalis capableof determining as to when a zero voltage occurs; and

a controller, coupled to said waveform generator and said zero voltage detector, for controlling said waveform generator to generate said input signal and determining a position of said sensing pen on said sensing pad responsive to said output signal from said zero voltage detector.

[c10] 10.The touch pad of claim 9, further comprising a multiplexer for switch-inputting said input signal between a horizontal direction and a vertical direction of said sensing pad.

[c11] 11.The touch pad of claim 9, wherein said waveform generator includes two digital-to-analog converters.

[c12] 12. The touch pad of claim 9, wherein said position of said zero voltage moves back and forth in said predetermined direction.

[c13] 13. The touch pad of claim 9, wherein said zero voltage detector is a comparator.